

## 1.1 Single Channel

### 1.1.1 Single Channel Chips



Fig. 1: Schematic drawing of the chips

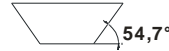
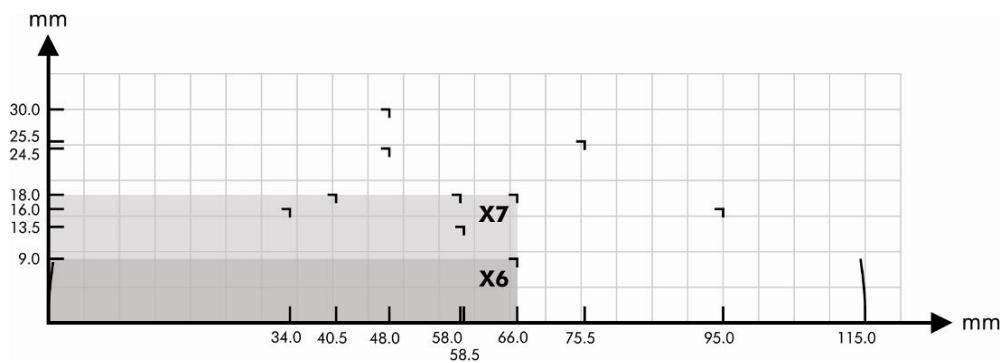


Fig. 2: Cross section of the channels

Product Number	Chip Format	Channel [ $\mu\text{m}$ ]				Hole diam. [mm]	Lid thickn. [ $\mu\text{m}$ ]	Material
		Wid. Top	Wid. Bot.	Dep.	Len. [mm]			
01-0001-0019-01	X6	40	12	20	54	1.0	250	PMMA
01-0002-0019-02	X6	40	12	20	54	1.0	130	Topas
01-0003-0019-01	X7	70	42	20	54	1.0	250	PMMA
01-0004-0019-02	X7	70	42	20	54	1.0	130	Topas
01-0005-0019-01	X6	120	92	20	54	1.0	250	PMMA
01-0006-0019-02	X6	120	92	20	54	1.0	130	Topas
01-0007-0020-01	X6	220	192	20	54	1.0	250	PMMA
01-0008-0020-02	X6	220	192	20	54	1.0	130	Topas
01-0009-0020-01	X6	420	392	20	54	1.0	250	PMMA
01-0010-0020-02	X6	420	392	20	54	1.0	130	Topas
01-0011-0020-01	X6	620	592	20	54	1.0	250	PMMA
01-0012-0020-02	X6	620	592	20	54	1.0	130	Topas
01-0013-0020-01	X6	820	792	20	54	1.0	250	PMMA
01-0014-0020-02	X6	820	792	20	54	1.0	130	Topas
01-0015-0020-01	X6	1020	992	20	54	1.0	250	PMMA
01-0016-0020-02	X6	1020	992	20	54	1.0	130	Topas
01-0017-0020-01	X6	1220	1192	20	54	1.0	250	PMMA
01-0018-0020-02	X6	1220	1192	20	54	1.0	130	Topas
01-0019-0020-01	X6	1420	1392	20	54	1.0	250	PMMA
01-0020-0020-02	X6	1420	1392	20	54	1.0	130	Topas
01-0021-0020-01	X6	1620	1592	20	54	1.0	250	PMMA
01-0022-0020-02	X6	1620	1592	20	54	1.0	130	Topas
01-0023-0020-01	X6	2020	1992	20	54	1.0	250	PMMA
01-0024-0020-02	X6	2020	1992	20	54	1.0	130	Topas
01-0150-0050-01	X6	610	470	100	54	1.0	250	PMMA
01-0151-0050-05	X6	610	470	100	54	1.0	200	Zeonor

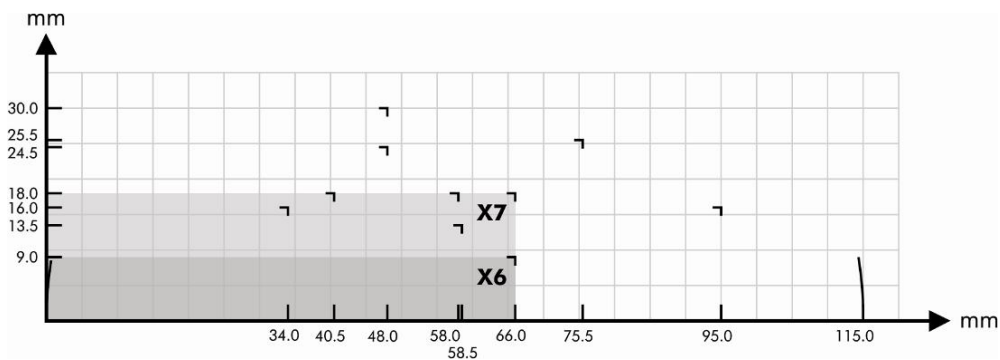


### 1.1.2 Single Channel with Luer Lok Compatible Fittings



**Fig. 3:** Micro channel chip with Luer Lok compatible fittings  
(Diameter of Luer Lok-through hole: 1.3 mm)

Product Number	Chip Format	Channel [ $\mu\text{m}$ ]			Hole diam. [mm]	Lid thickn. [ $\mu\text{m}$ ]	Material	
		Wid. Top	Dep. Bot.	Len. [mm]				
01-0025-0019-01	X6	40	12	20	54	1.0	250	PMMA
01-0027-0019-01	X7	70	42	20	54	1.0	250	PMMA
01-0029-0019-01	X6	120	92	20	54	1.0	250	PMMA
01-0031-0020-01	X6	220	192	20	54	1.0	250	PMMA
01-0033-0020-01	X6	420	392	20	54	1.0	250	PMMA
01-0035-0020-01	X6	620	592	20	54	1.0	250	PMMA
01-0037-0020-01	X6	820	792	20	54	1.0	250	PMMA
01-0039-0020-01	X6	1020	992	20	54	1.0	250	PMMA
01-0041-0020-01	X6	1220	1192	20	54	1.0	250	PMMA
01-0043-0020-01	X6	1420	1392	20	54	1.0	250	PMMA
01-0045-0020-01	X6	1620	1592	20	54	1.0	250	PMMA
01-0047-0020-01	X6	2020	1992	20	54	1.0	250	PMMA



## 1.2 Cross-Shaped Channel

### 1.2.1 Cross-Shaped Channel Chips

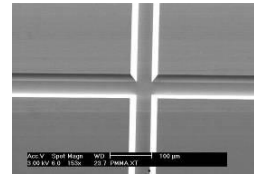
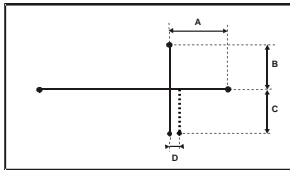


Fig. 4: Chip layout

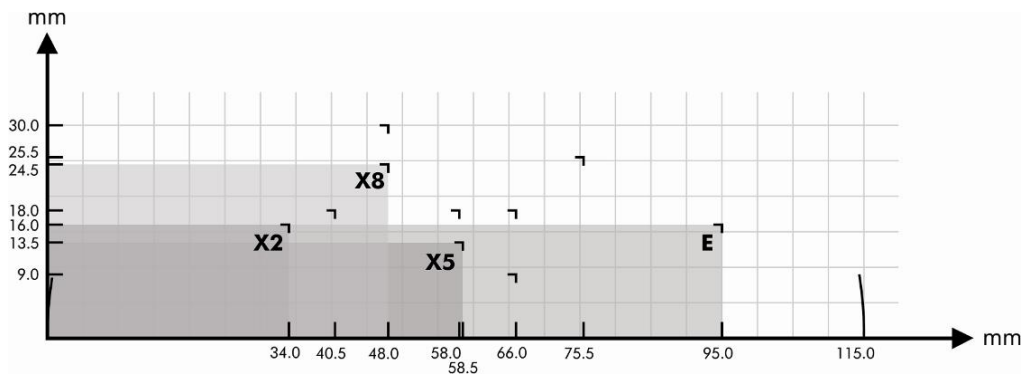
Fig. 5: Example of a chip design

Fig. 6: SEM picture of a cross point



Fig. 7: Cross section of the fluidic channels

Product Number	Chip Format	Channel [μm]			Hole diam. [mm]	Geometry				Lid thick. [μm]	Material	
		Wid. Top	Wid. Bot.	Dep.		Len. [mm]	A [mm]	B [mm]	C [mm]			D [mm]
02-0049-0013-01	E	70	42	20	87.8	2.0	6.0	5.0	5.0	250	PMMA	
02-0050-0013-01	E	70	42	20	87.8	2.0	6.0	5.0	5.0	0.1	250	PMMA
02-0053-0013-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	250	PMMA	
02-0054-0013-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	0.1	250	PMMA
02-0057-0013-02	E	70	42	20	87.8	2.0	6.0	5.0	5.0	130	Topas	
02-0058-0013-02	E	70	42	20	87.8	2.0	6.0	5.0	5.0	0.1	130	Topas
02-0059-0013-02	E	70	42	20	87.8	1.5	6.0	5.0	5.0	130	Topas	
02-0060-0013-02	E	70	42	20	87.8	1.5	6.0	5.0	5.0	0.1	130	Topas
02-0061-0015-01	X2	120	92	20	31	2.0	6.0	6.0	6.0	250	PMMA	
02-0062-0015-01	X2	120	92	20	31	1.5	6.0	6.0	6.0	250	PMMA	
02-0063-0015-02	X2	120	92	20	31	2.0	6.0	6.0	6.0	130	Topas	
02-0064-0015-02	X2	120	92	20	31	1.5	6.0	6.0	6.0	130	Topas	
02-0065-0015-03	X2	120	92	20	31	2.0	6.0	6.0	6.0	250	PC	
02-0066-0015-03	X2	120	92	20	31	1.5	6.0	6.0	6.0	250	PC	
02-0067-0015-01	X2	220	192	20	31	2.0	6.0	6.0	6.0	250	PMMA	
02-0068-0015-01	X2	220	192	20	31	1.5	6.0	6.0	6.0	250	PMMA	
02-0069-0015-02	X2	220	192	20	31	2.0	6.0	6.0	6.0	130	Topas	
02-0070-0015-02	X2	220	192	20	31	1.5	6.0	6.0	6.0	130	Topas	
02-0071-0015-03	X2	220	192	20	31	2.0	6.0	6.0	6.0	250	PC	
02-0072-0015-03	X2	220	192	20	31	1.5	6.0	6.0	6.0	250	PC	
02-0073-0016-01	X5	60	32	20	49.5	1.5	4.5	4.5	4.5	250	PMMA	
02-0074-0016-02	X5	60	32	20	49.5	1.5	4.5	4.5	4.5	130	Topas	
02-0075-0018-01	X8	112	98	10	36	1.0	9.0	6.8	6.8	250	PMMA	
02-0076-0018-02	X8	112	98	10	36	1.0	9.0	6.8	6.8	130	Topas	
02-0077-0018-01	X8	120	92	20	36	1.0	9.0	6.8	6.8	250	PMMA	
02-0078-0018-02	X8	120	92	20	36	1.0	9.0	6.8	6.8	130	Topas	



### 1.2.2 Cross-Shaped Channel Chips plus Outlet Channel

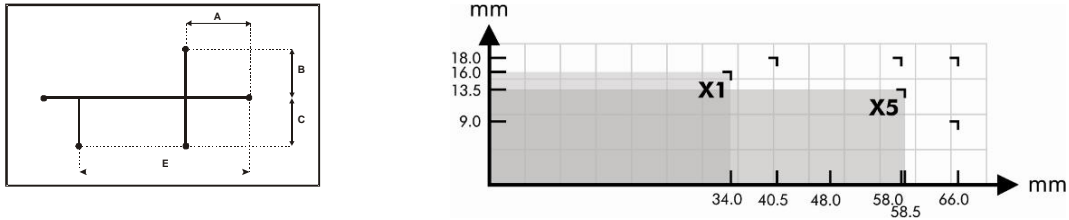


Fig. 8: Schematic drawing

Product Number	Chip Format	Channel [ $\mu\text{m}$ ]		Dep. [mm]	Len. [mm]	Hole diam. [mm]	Geometry [mm]				Lid thckn. [ $\mu\text{m}$ ]	Material
		Wid. Top	Wid. Bot.				A	B	C	E		
02-0079-0009-01	X1	24	10	10	27.9	1.0	4.5	4.5	4.5	23.4	250	PMMA
02-0080-0009-02	X1	24	10	10	27.9	1.0	4.5	4.5	4.5	23.4	130	Topas
02-0081-0009-01	X1	34	20	10	27.9	1.0	4.5	4.5	4.5	23.4	250	PMMA
02-0082-0009-02	X1	34	20	10	27.9	1.0	4.5	4.5	4.5	23.4	130	Topas
02-0083-0009-01	X1	64	50	10	27.9	1.0	4.5	4.5	4.5	23.4	250	PMMA
02-0084-0009-02	X1	64	50	10	27.9	1.0	4.5	4.5	4.5	23.4	130	Topas
02-0085-0009-01	X1	114	100	10	27.9	1.0	4.5	4.5	4.5	23.4	250	PMMA
02-0086-0009-02	X1	114	100	10	27.9	1.0	4.5	4.5	4.5	23.4	130	Topas
02-0087-0015-01	X5	60	32	20	54	1.5	4.5	4.5	4.5	49.5	250	PMMA
02-0088-0015-02	X5	60	32	20	54	1.5	4.5	4.5	4.5	49.5	130	Topas
02-0091-0015-03	X5	60	32	20	54	1.5	4.5	4.5	4.5	49.5	250	PC
02-0089-0015-01	X5	60	32	20	54	2.0	4.5	4.5	4.5	49.5	250	PMMA
02-0090-0015-02	X5	60	32	20	54	2.0	4.5	4.5	4.5	49.5	130	Topas
02-0092-0015-03	X5	60	32	20	54	2.0	4.5	4.5	4.5	49.5	250	PC

### 1.2.3 Microfluidic Chips with Cross Shaped Channels and Integrated Fluidic Reservoirs

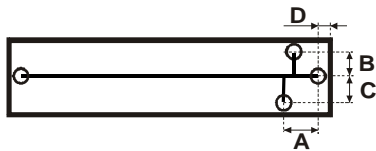
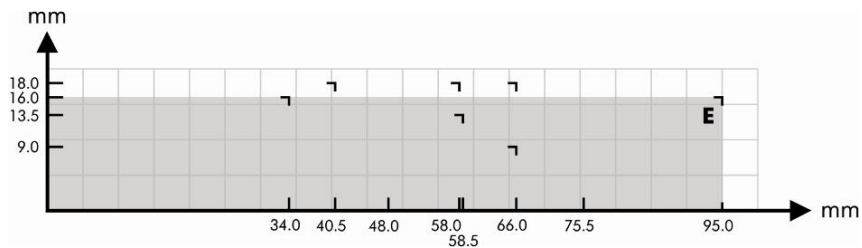


Fig. 9: Chip layout. The reservoirs have a standard volume of 74  $\mu\text{l}$  (max 90  $\mu\text{l}$ ).



Fig. 10: Chip with integrated fluidic reservoirs

Product Number	Chip Format	Channel [ $\mu\text{m}$ ]		Len. [mm]	diam. [mm]	Geometry [mm]				Lid thckn. [ $\mu\text{m}$ ]	Material	
		Wid. Top	Wid. Bot.			A	B	C	D			
02-0750-0082-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	4.0	250	PMMA
02-0751-0082-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	4.0	250	PMMA



### 1.3 Microfluidic Chips with Electrodes

The electrodes are placed on the cover lid.

**Material of the electrodes:** 10 nm Titanium / 100 – 150 nm Gold

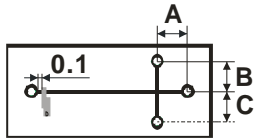


Fig. 11: Chip layout

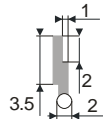


Fig. 12: Electrode design & through hole

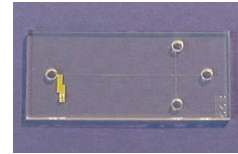


Fig. 13: Chip with electrode

Product Number	Chip Format	Channel [ $\mu\text{m}$ ]			Hole diam. [mm]	Geometry [mm]			Lid thickn. [ $\mu\text{m}$ ]	Material	
		Wid.	Dep.	Len.		A	B	C			
03-0093-0015-01	X2	120	92	20	31	2.0	6.0	6.0	6.0	250	PMMA
03-0094-0015-02	X2	120	92	20	31	2.0	6.0	6.0	6.0	130	Topas
03-0095-0015-01	X2	220	192	20	31	2.0	6.0	6.0	6.0	250	PMMA
03-0096-0015-02	X2	220	192	20	31	2.0	6.0	6.0	6.0	130	Topas



Fig. 14: Chip layout with electrode

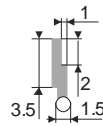


Fig. 15: Electrode design & through hole

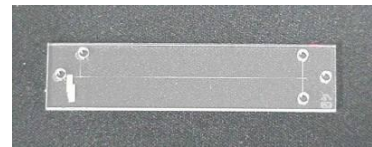
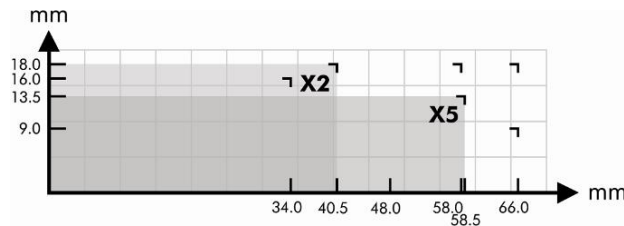


Fig. 16: Chip with electrode

Product Number	Chip Format	Channel [ $\mu\text{m}$ ]				Hole diam. [mm]	Geometry [mm]				Lid thickn. [ $\mu\text{m}$ ]	Material
		Wid.	Dep.	Len.			A	B	C	E		
03-0135-0015-01	X5	60	32	20	54	1.5	4.5	4.5	4.5	49.5	250	PMMA
03-0136-0015-02	X5	60	32	20	54	1.5	4.5	4.5	4.5	49.5	130	Topas



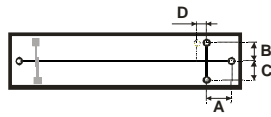


Fig. 17: Chip layout

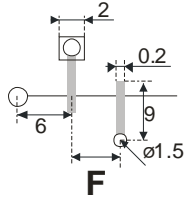


Fig. 18: Electrode design & through holes, dif. electrode geometries (F)

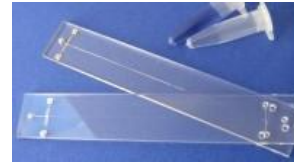
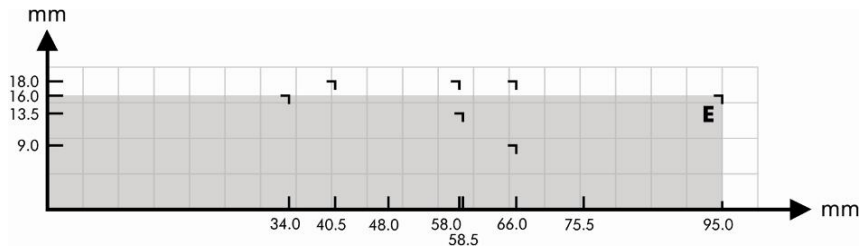


Fig. 19: Chip with electrodes

Product Number	Chip Format	Channel [ $\mu\text{m}$ ]			Hole diam. [mm]	Geometry [mm]					Lid thickn. [ $\mu\text{m}$ ]	Material	
		Wid. Top	Wid. Bot.	Dep.		Len.	A	B	C	D			F
03-0097-0013-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	0.2	250	PMMA	
03-0098-0013-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	0.4	250	PMMA	
03-0099-0013-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	0.6	250	PMMA	
03-0100-0013-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	0.1	0.2	250	PMMA
03-0101-0013-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	0.1	0.4	250	PMMA
03-0102-0013-01	E	70	42	20	87.8	1.5	6.0	5.0	5.0	0.1	0.6	250	PMMA



1.4 H-Shaped Channel

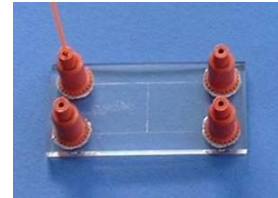
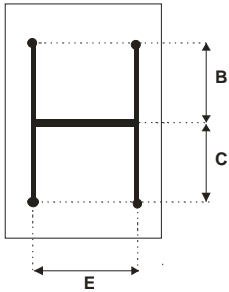
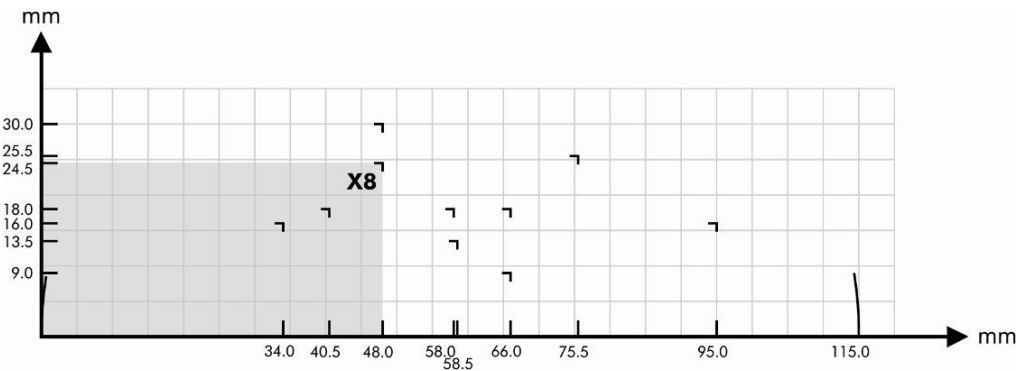


Fig. 20: Schematic drawing of the chips

Fig. 21: Chip with Luer Lok compatible fittings (diameter of Luer Lok-through hole: 1.3 mm)

Fig. 22: Chip with Upchurch fittings

Product Number	Chip Format	Channel E [ $\mu\text{m}$ ]				Hole diam. [mm]	Geometry			Channels B & C		Lid thickn. [ $\mu\text{m}$ ]	Material	Fluidic Interface
		Wid. Top	Wid. Bot.	Dep.	Len. [mm]		B [mm]	C [mm]	E [mm]	Wid. Top	Wid. Bot.			
04-0103-0018-01	X8	220	192	20	13.5	1.0	18.0	18.0	13.5	120	92	250	PMMA	Luer Lok Luer Lok Upchurch Upchurch Upchurch Upchurch
04-0104-0018-02	X8	220	192	20	13.5	1.0	18.0	18.0	13.5	120	92	130	Topas	
04-0123-0018-01	X8	212	198	10	13.5	1.0	18.0	18.0	13.5	112	98	250	PMMA	
04-0124-0018-02	X8	212	198	10	13.5	1.0	18.0	18.0	13.5	112	98	130	Topas	
04-0105-0018-01	X8	220	192	20	13.5	1.0	18.0	18.0	13.5	120	92	250	PMMA	
04-0125-0018-01	X8	212	198	10	13.5	1.0	18.0	18.0	13.5	112	98	250	PMMA	
04-0107-0018-01	X8	220	192	20	13.5	1.0	18.0	18.0	13.5	120	92	250	PMMA	
04-0108-0018-02	X8	220	192	20	13.5	1.0	18.0	18.0	13.5	120	92	130	Topas	
04-0127-0018-01	X8	212	198	10	13.5	1.0	18.0	18.0	13.5	112	98	250	PMMA	
04-0128-0018-02	X8	212	198	10	13.5	1.0	18.0	18.0	13.5	112	98	130	Topas	



microfluidic standard

chips

1.5 Titerplate Chips

1.5.1 Nanotiterplates

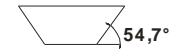
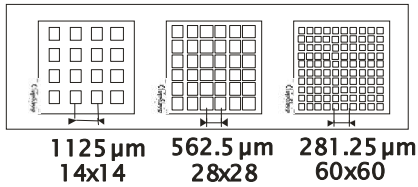


Fig. 23: Schematic drawing of the nanotiterplate

Fig. 24: Nanotiterplates

Fig. 25: Cross section of the well geometry

Product Number	Chip Format	Well Dep. [μm]	Well Size [μm]						Well Spacing [μm]			Material
			Part 1		Part 2		Part 3		Part 1	Part 2	Part 3	
			Top	Bot.	Top	Bot.	Top	Bot.				
05-0131-0018-01	M	10	112	98	212	198	412	398	281.25	562.5	1125	PMMA
05-0132-0018-02	M	10	112	98	212	198	412	398	281.25	562.5	1125	Topas
05-0133-0018-01	M	20	124	96	224	196	424	396	281.25	562.5	1125	PMMA
05-0134-0018-02	M	20	124	96	224	196	424	396	281.25	562.5	1125	Topas
05-0137-0018-03	M	20	124	96	224	196	424	396	281.25	562.5	1125	PC
05-0138-0018-05	M	20	124	96	224	196	424	396	281.25	562.5	1125	Zeonor
05-0139-0018-04	M	20	124	96	224	196	424	396	281.25	562.5	1125	Zeonex

1.5.2 Titerplates

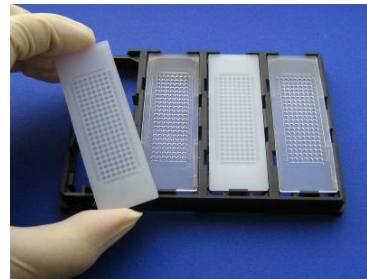
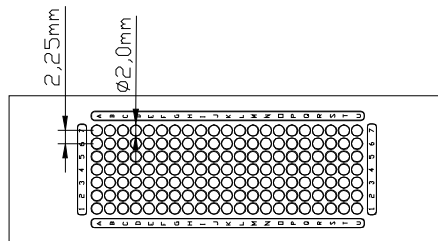


Fig. 26: Layout of the titerplate

Fig. 27: Titerplates in handling frame

Product Number	Chip Format	Well Size [mm]		Well Spacing [mm]	Material	Prize [€/10 chips]				
		Dep.	Diam.			1+	10+	50+	100+	500+
05-0143-0074-08.10	M	0.8	2.0	2.25	PP	90	70	60	50	24.80
05-0144-0074-09.10	M	0.8	2.0	2.25	MABS	90	70	60	50	24.80
05-0145-0074-10.10	M	0.8	2.0	2.25	MBS	90	70	60	50	24.80

### 1.5.3 Microfluidics in SBS Microtiterplate Format

The SBS titerplate format is a worldwide standard used by almost any piece of equipment in laboratory equipment. To easily integrate microfluidics development in existing lab environments, we have developed a microfluidic platform with the outer dimensions of a standard microtiter plate. The plate is equipped with four labelled sets of 16 microchannels each, with dimensions 2 mm width, 150 μm height and 18 mm length. Fluidic access is easily provided by conical openings of 2.5 mm diameter at either channel end. The plate is available in a variety of polymer materials like PC, PS, PMMA or COP (Zeonor), either in its native state or hydrophilically primed for self-filling of the microchannels with aqueous solutions. It is possible to include surface functionalization in the channels like the spotting of DNA probes etc. (see Fig. 29) Applications include cell based assays, hybridization assays or small volume chemical synthesis.

Product Number	Chip Format	Channel Dim [mm]			Material
		W	H	L	
05-0146-0102-01	SBS-titerplate	2	0.15	18	PMMA
05-0147-0102-03	SBS-titerplate	2	0.15	18	PC
05-0148-0102-07	SBS-titerplate	2	0.15	18	PS
05-0149-0102-05	SBS-titerplate	2	0.15	18	Zeonor
05-0160-0102-01	SBS-titerplate	2	0.15	18	PMMA hydrophilized
05-0161-0102-03	SBS-titerplate	2	0.15	18	PC hydrophilized
05-0162-0102-07	SBS-titerplate	2	0.15	18	PS hydrophilized
05-0163-0102-05	SBS-titerplate	2	0.15	18	Zeonor hydrophilized

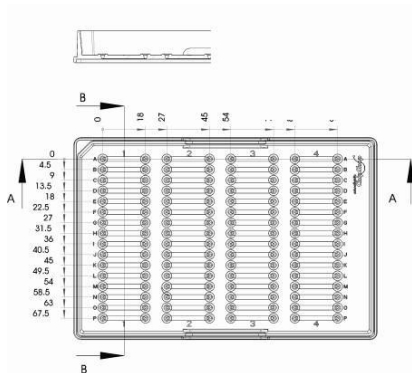


Fig. 28: Schematic drawing of the microfluidic wellplate

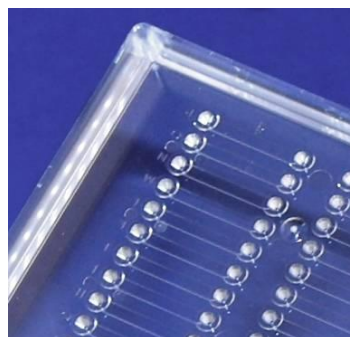


Fig. 29: Microfluidic wellplate

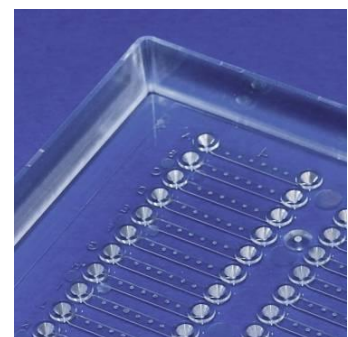


Fig. 30: Microfluidic-wellplate with spotted DNA probes